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it with their long hooked bills, flying now above, now before, now below it, the hawks would so confuse their victims that eventually, feeling that the only safety for its life lay in letting go part of its store of supplies as a sop for its assailants to quarrel over, the booby would on a sudden drop one of its fish, whereat a hawk would swoop down, more rapidly than the eye could follow, and catch the food before it had touched the wave, then taking it securely in its bill would fly majestically off to feed its own ever expectant offspring. The unfortunate booby meanwhile was farther pursued by the less fortunate hawks until, reft of all her quarry, she was allowed to return to her young.

"On the fringing reef hereabout were exposed a number of large blocks of coral stone that served an interesting purpose in these sea battles. If a booby succeeded in warding off or evading her pursuers from the first attack she would set a course direct for one of these rocks, the hawks usually increasing in numbers at every moment in hot pursuit. Perhaps another fish would be dropped on the way, but if at last the bird was able to make this place of safety its pursuers would mount high in air, or, to use a sea term, lay off and on, sailing back and forth always keeping the sharpest watch on the brown object sitting quietly on the rock. After a short rest, and choosing a favorable opportunity when its pursuers were at some distance, the booby would make a final dash for the shore. The nearer it got to the beach the more furious grew the conflict; for in addition to the hawks both the noddy and white terns would take a hand in the robbery. It often occurred that a bird that had let go its catch one by one as it came in would here, within fifty yards of its nest, disgorge its last fish, which would be eagerly caught up by any one of its pursuers that was able to secure it. Panting and excited the old boobies would drop down on arriving at the colony in an exhausted condition.

"The frigate birds showed much discrimination, selecting at once the boobies that were most heavily laden and consequently more liable to pay generous toll when brought in contact with this high-handed system of exacting customs duties. Though tropic birds were attacked they were more rapid flyers and more expert in evading pursuit. As in the story of the two dogs that quarreled over a bone, it was not uncommon in the performances I have described to see the tiny white tern reap the most substantial benefit from one of these encounters. Battles similar to those mentioned were to be seen during the entire day, but towards nightfall they were more numerous as well as more severe."

Stanford University, Cal.

The Farallone Islands Revisited, 1887-1903

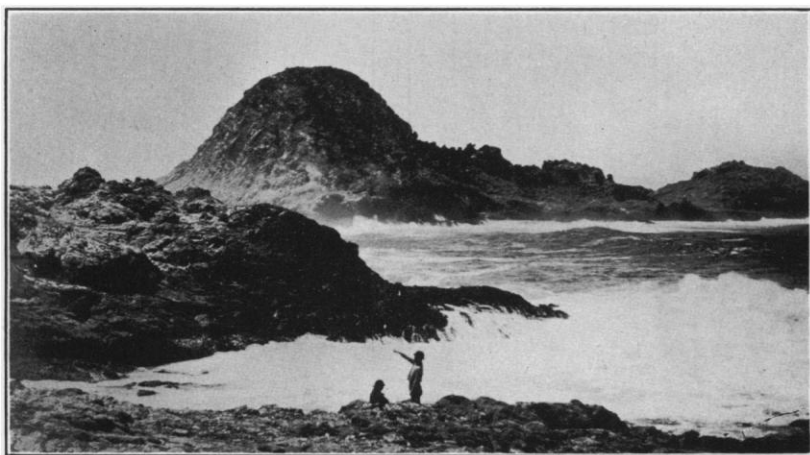
BY W. OTTO EMERSON

ILLUSTRATED WITH PHOTOGRAPHS BY THE AUTHOR

FROM the old Spanish Chronicles we learn of the discovery of the Farallone Islands in 1543 by Ferrelo. It was Sir Francis Drake, however, who gave us the first particular description of the "Island of St. James," as they were then known (1579). Drake, it seems, landed to replenish his larder with seal meat. Doubtless he laid in a stock of eggs, for a man is never too old a boy to collect eggs where they may be had for the taking. In 1775 Bodega and Maurelle,

on their way up the northwest coast named the islands "Los Farallones de los Frayles" in honor of the monks who had discovered San Francisco Bay in 1769, the same year that the Franciscans founded their first mission in Alta California, at San Diego. The first settlers on the islands, we know, were Russians from the north who came with Aleuts to fish and seal hunt. There remain today, on the southeastern part of the island, the well-preserved stone walls of their low huts, but the date of their occupancy is unknown.

The islands are formed of crystalline granite, a ridge rising many hundred feet above the ocean floor. Sugar Loaf Rock in Fisherman's Bay is an exception being a conglomerate of coarse gravel standing isolated 185 feet above sea-level. South Farallone Island is the largest of the group. At water line the rocks are of a blackish brown where the surf beats, and then above high water mark change to a yellow or light grayish tone over all the island, where not occupied by the roosting or nesting areas of the sea-fowl, or changed by the presence of introduced plants. The granite readily yields to a pick, and offers a firm footing, but is rather hard on shoe-leather. Shore lines are all cut up into great channel-like troughs,



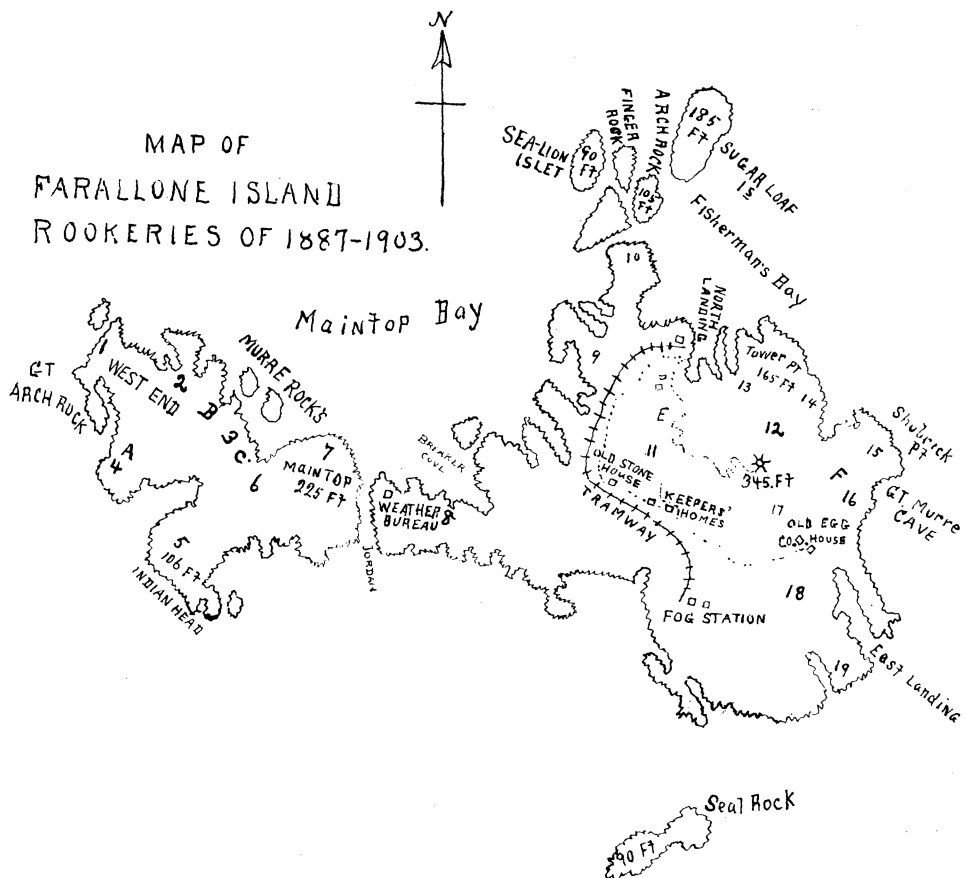
WEST END ACROSS BREAKER BAY

with arched grottos running far into the rock and filled with gorgeously tinted marine life. There are natural bridges, pot holes, and shelving ledges of all descriptions.

I will go into a general description of the island life only so far as it may tend to show the changes which have occurred in the colony life of the feathered occupants as noted in my former visits to the island in 1885-87, and in 1903. Naturally many changes would occur when so many thousands of sea-fowl have been more or less disturbed during the nesting season for the past fifty years. In 1850 the Farallone Egg Company was organized to collect and ship the eggs of the California murre (*Uria l. californica*) for the San Francisco market, and by 1856 it was estimated that three or four millions of eggs had been shipped.^a Twenty-five thousand dozen a year were then said to have been taken up to 1873.^b This figure then decreased to about 15,000 dozen, which was not far from the amount

^a Hutching's Magazine, Aug. 1856, p. 53.

^b Harper's Monthly, April, 1874, p. 623.



shipped in 1892.^a This amount was increased to 25,000 dozen in 1887, I was informed by the head keeper, which was the largest picking for several years past. In 1896 Mr. Leverett M. Loomis visited the island, and the egg picking had fallen to 7645 dozen.^b From this it is apparent a great decrease in the laying of the murres had taken place on South Farallone, and I was prepared to note a corresponding change in the abundance of murres, as well as a decrease in gulls and cormorants.

June 2, 1903, at 2:30 p. m. found me on the wet deck of the staunch little tug "Voltaire," which rolled like a tub as we lay in Fisherman's Bay, facing the old familiar points, but not the endless multitude of sea-fowl I had seen in 1887 swarming from the great colonies on Sugar Loaf, Arch Rock, and other places. A walk among the many breeding spots of the southern portions of the island showed an entire absence of birds, and a tramp over to West End on the following day showed similar conditions in many places. Of one rookery, in particular, of Brandt cormorants (*P. penicillatus*) where I often spent hours among the nests, nothing remained. This cormorant community was the largest single colony on the island, and the least disturbed of any, being on Indian Head, on a high flat

^a Overland Monthly, Sept. 1892, p. 241.

b California Water Birds, III, p. 357.



GREAT ARCH, WEST END

bluff facing the ocean and away from the main rookeries of murres. From the appearance of the nests they had been used for many years.

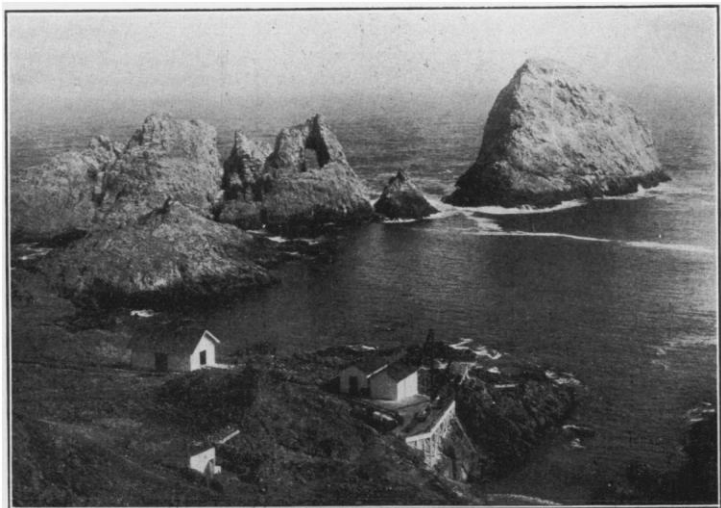
On the accompanying map the rookeries as noted in 1887 are designated by numbers, while those of 1903 are indicated by letters.

(1) Murre Bridge or Great Arch Rock was formerly occupied along the whole ridge. Colony has decreased somewhat.

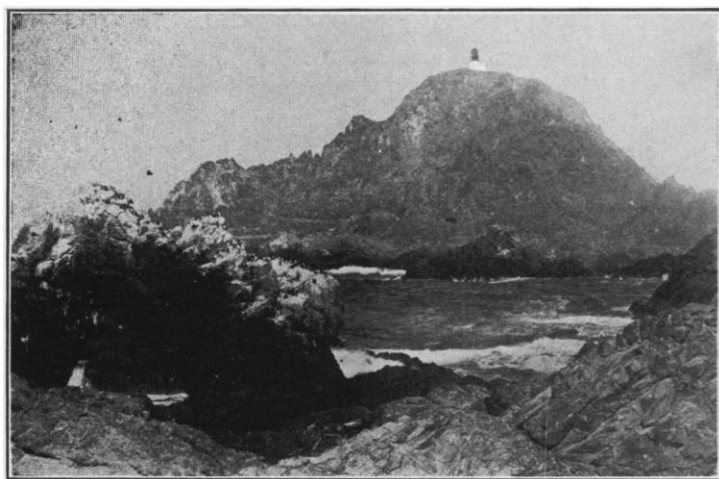
(2) A small colony of Farallone cormorants (*Phalacrocorax dilophus albociliatus*) has disappeared.

(3) This great murre rookery on the divide of West End was one of the largest on that section of the island. By standing in a gap or slit of the ridge one could look down upon hundreds of cackling, bobbing, murres going to and coming from the sea, after feeding hours. They seem to have regular times of the day, when incubating, to relieve each other. This rookery is much reduced, and the birds are very wary. All the island birds have grown more wild, probably

because a dog, which did not used to be kept, now accompanies the men and children wherever they go, and causes the birds to be continually moving on and off their nests. This is particularly the case about the southern part of the flats and rocks below the keepers' dwellings. Where one could go out ten yards beyond the house among the rocks and study the birds contentedly brooding their eggs, now none are seen, unless it be petrels and auklets among the stone-walled trails, or in burrows.



LOOKING OVER FISHERMAN'S BAY TO SUGAR LOAF ISLAND



LIGHT TOWER HILL AND BREAKER BAY FROM JORDAN

(4 and 5) Brandt cormorant. Of these large colonies nothing is left.

(6) Tufted puffin (*Lunda cirrhata*). This was the largest single nesting site of puffins on the island, in 1887, and still is. As the puffin is a burrowing species it is more protected during the nesting season.

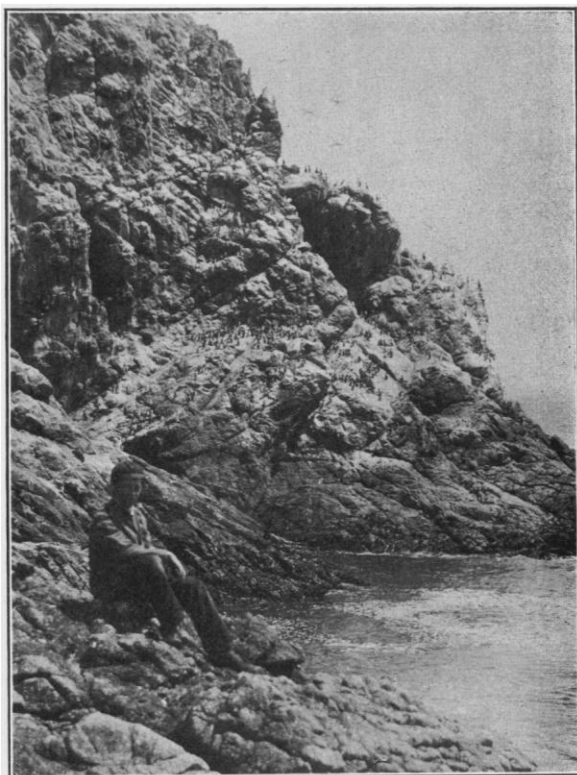
(7) Baird cormorant (*Phalacrocorax pelagicus res-*

plendens). This species does not congregate in large colonies in any place. This community which comprised only eight or ten nests on the face of Main-top, east side, has disappeared.

(8) Western gull (*Larus occidentalis*). A colony of gulls along a slight ridge of approach to the bridge over Jordan have left. Many of the smaller colonies of gulls that were to be found at the south end of the island in 1887 have disappeared. The gulls are now congregated at the west end.

(9) Cassin auklet (*Ptychoramphus aleuticus*) holds its own along the stone walls of the tramway, and is increasing in numbers, if anything.

(10) Western gulls had here a small scattered colony over the low flat rocks facing Fisherman's Bay. I found only two nests in this locality in 1903. It was here I learned something of the pup sea-lion's love for fresh eggs. Early one morning I met a pup with its mouth bedaubed with egg, making its way among the gull nests. Two more



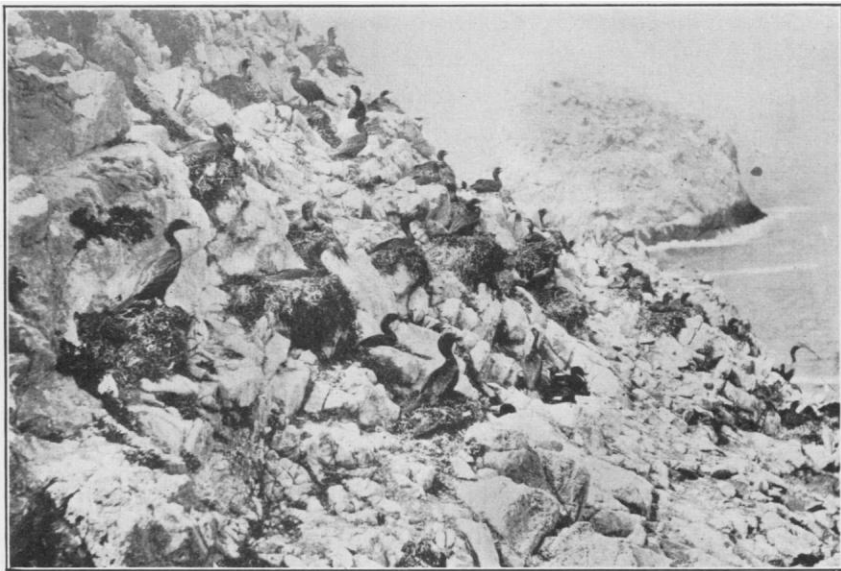
GREAT MURRE CAVE, EAST END

surprised individuals never met on the collecting field. The big brown watery eyes looked up as much as to say, "You've caught me in the act; what are you going to do about it?" When I attempted to pat its head, it uttered a low 'eggy' yelp, and ambled off to the water's edge.

(11) The murre had a large rookery on the ridge that runs out from Tower Hill, facing the old stone house (built in 1855) of the first light keeper on the island. This colony has all but disappeared.

(12) This location contained the largest Farallone cormorant rookery of the island (just below the light-tower doorway and facing to north of Shubrick Pt.). The birds have all left this portion of the island. The accompanying halftone, from a photograph taken in 1887 shows this rookery as it then appeared. This picture was the first ever taken of these cormorants.

(13) In a sort of swale just above North Landing the Western gulls had a



ROOKERY OF FARALLONE CORMORANTS IN 1887

small colony consisting of twenty or thirty nests. These have all disappeared.

(14) Pigeon guillemot (*Cepphus columba*). This was and still is the most abundant colony of these birds on the island. The locality affords plenty of piled-up loose rocks, where the sea pigeons (as they are called) can lay the two bluish-gray eggs in a natural hollow.

(15 and 16) Great Murre Cave and Shubrick Point still possess the abundance of birds which characterized them in 1887. The view here shown of Great Murre Cave can give but a slight impression of this great cavern of sea-fowl life.

(17) A colony of western gulls and Farallone cormorants was located on a spur or slight ridge jutting out from a bend of the trail near summit of the Light Tower. This ridge is now bare of any life. The gulls have also disappeared from flat near east landing (18).

(19) Pigeon guillemot rookeries at East End and along the south shore are all of the past. On Seal Rock can still be seen a large rookery of murres and a few cormorants, as well as the only remaining colony of sea-lions. A much larger number of these sea brutes were located on Sea Lion Islet in 1887. There was also a colony of cormorants at the top as shown by the accompanying illustration, from a photograph taken at the time. Another colony of sea-lions was living on the flat and rocks at West End, where Murre Rocks lie.

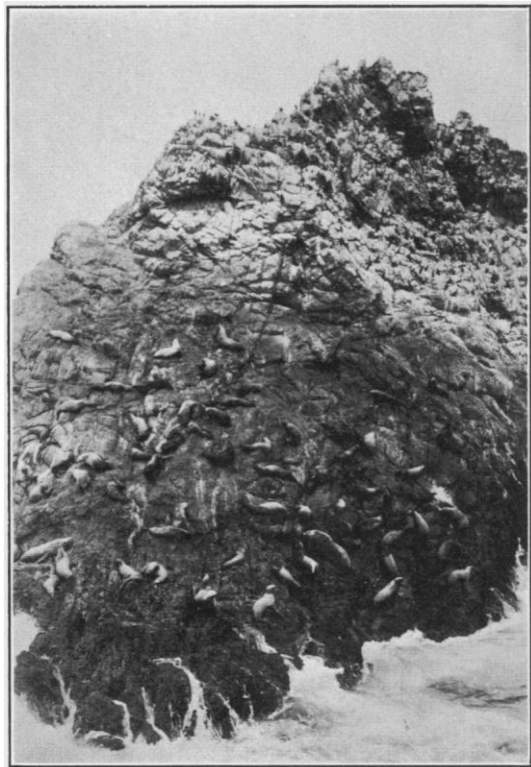
The rookeries as they occurred in 1903 are as follows: (A) Western gull near where formally were Brandt cormorants. (B) A large colony of several hundred Brandt cormorants are located on a slope facing Murre Rocks. This is at present the largest colony of this species. (C) Baird cormorants, a few nests along the shelving face of the divide between Main Top and West End. (D) Western gulls. A scattered colony have their homes here among the tumbled-down rocks. The sea parrots or puffins live here on social terms with the gulls. (E) A colony of puffins is still located along this ridge where they were seen abundantly in 1887. (F) Pigeon guillemots are seen at this old nesting site and have increased in numbers.

Where formerly the Farallone cormorant was the most abundant of the slags, there is now left only a colony of about seventy, at West End, mentioned by Mr. Kaeding as having young, in his article in *THE CONDOR*, September, 1903.

It would be natural to expect, that after nearly half a century of raiding of the murres for their eggs, the rookeries would show some decrease in size; and also that the collecting of their eggs for two or more months would effect the fertility and size of those deposited, at a time when there should naturally be young.

I was able to collect a considerable series of the small eggs from the thousand brought in from the rookeries during my stay of six weeks on the island. All were taken during July 1887, and I append a table of their measurements, along with the dimensions of the same number of typical eggs. The engraving will show their relative sizes when viewed side by side.

That the National Government has been wise in protecting this island bird life no one will deny who has once observed its wonders.

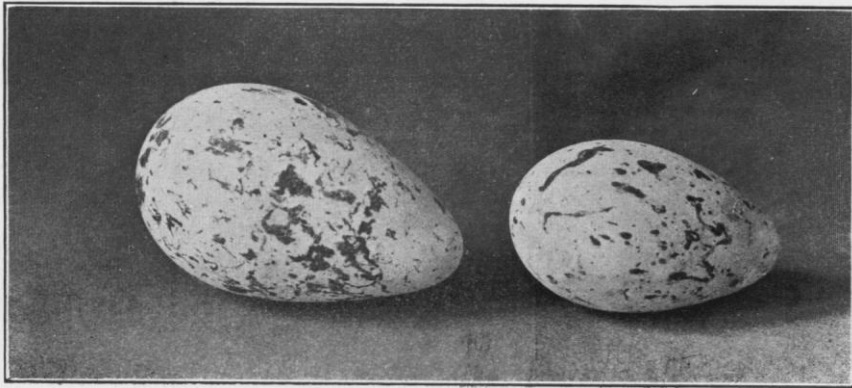


SEA LION ISLET IN 1887

(The cormorant rookery has disappeared)

TABLE OF MEASUREMENTS IN MILLIMETERS OF NORMAL AND SMALL-SIZED EGGS OF THE CALIFORNIA MURRE.

TYPICAL EGGS		SMALL EGGS		TYPICAL EGGS		SMALL EGGS	
1	50 x 81	43 x 69		6	52 x 86	42 x 79	
2	51 " 84	43 " 69		7	52 " 86	41 " 71	
3	51 " 82	43 " 67		8	53 " 83	45 " 69	
4	52 " 81	43 " 70		9	52 " 86	39 " 60	
5	52 " 90	43 " 65		10	52 " 86	37 " 63	



EGGS OF CALIFORNIA MURRE

Twelve Rock Wren Nests in New Mexico

BY FLORENCE MERRIAM BAILEY

ILLUSTRATED WITH PHOTOGRAPHS FROM THE BIOLOGICAL SURVEY COLLECTION

ROCK wrens abound among the eroded sandstone cliffs and gulches of the plains region of New Mexico, and while we were working in the country last summer we found twelve of their nests and innumerable families of young birds.

Our twelve nests were distributed over a period of three months with margins on either side, the first of those containing young being found on May 23, and the last on August 25. Of the four nests of young that we discovered, three were found between May 23 and June 1. A nest containing six eggs on June 27 was our only record of eggs.

As the wrens themselves identified eight of our twelve nests—the one containing eggs, the four with nestlings, and also three of the unoccupied nests, the old birds being in evidence about them—we became sufficiently familiar with the Salpinctian style of architecture to leave no doubt as to the identity of the remaining four.

While the nests varied in bulk and the relative proportion of sticks, weeds, and grass stems used, and one builder so far departed from the general custom as to line with hair and feathers, one peculiarity characterized all twelve of the